



DTE Energy[®]

Electric Standby Service – Rider 3

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March 14, 2016



- **Standby Primer**

- What is Standby
- DTE Customers Types
- Historical Data
- Key Terms
- Basic Customer Configuration

- **Load Profiles**

- Daily Demands
- Supplemental vs. Standby Demands
- Setting Contract Capacity

- **Tariff**

- Rate Structure
- Capacity Charge Demand Rates
- Daily Demand Adjustments
- Energy only

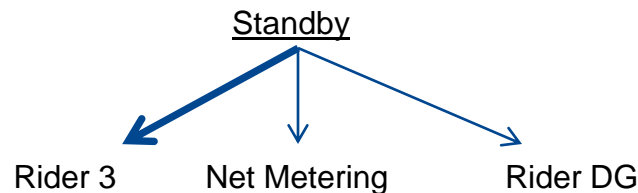
- **Customer Examples**

- Large Industrial 7 MW Peak with CHP
- Large Commercial 1 MW Peak with Solar
- Large Commercial 1 MW Peak with CHP

What is Standby Service?



STANDBY SERVICE: Is back-up electric service to meet the power supply requirements of load that is normally served by a customer's on site generator.



Who is required to take standby service under Standard Contract Rider No. 3 (Rider 3)?

Although the Company technically provides back-up to any full service load that is normally served by a customer's generator, the MPSC has exempted certain rates and technologies from taking standby service under Rider 3.

Exempted Rates:

- Rider 13 - Dispersed Generation
- Rider 16 - Net Metering (Categories 1 & 2) (generator size limited to 20kW and 150kW respectively)
- Rider DG - Distributed Generation (generator size limited to 100kW)

Exempted Technology:

- Regenerative dynamometers

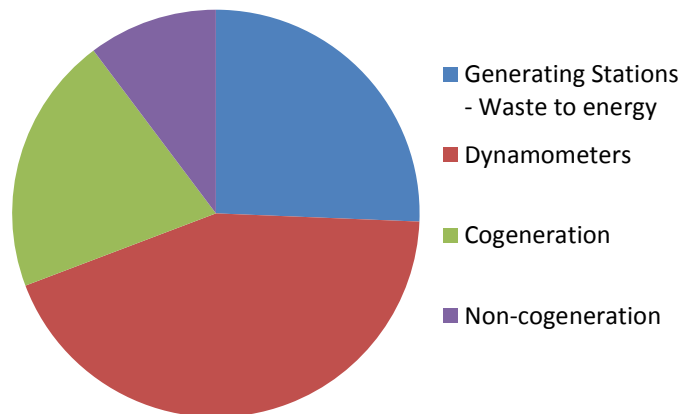
Types of Standby Customers

Currently, there are approximately 45 customers taking service under Rider 3 for various purposes:

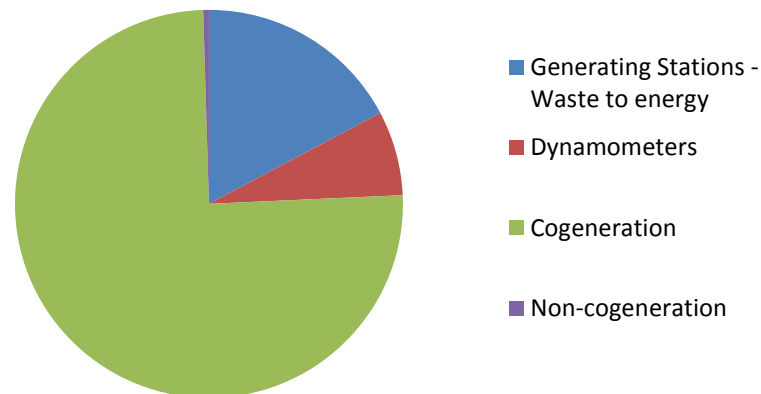
- Generating Stations – Mainly waste-to-energy facilities operating under “PA2” contracts (e.g. generators fueled by landfill gas or solid waste). The Company also offers a special form of standby service under Rider 3 for generating stations that are directly interconnected with ITC Transmission (Station Power Standby Service)
- Dynamometers – Device for measuring force, torque or power. (e.g. automotive testing labs)
- Cogeneration – Combined heat and power generation systems where thermal loads are required (e.g. universities with large heating and cooling loads, hospitals, paper manufacturers, fuel refineries)
- Non-Cogeneration – Simple cycle generation, solar or wind projects

2013 Historical Data

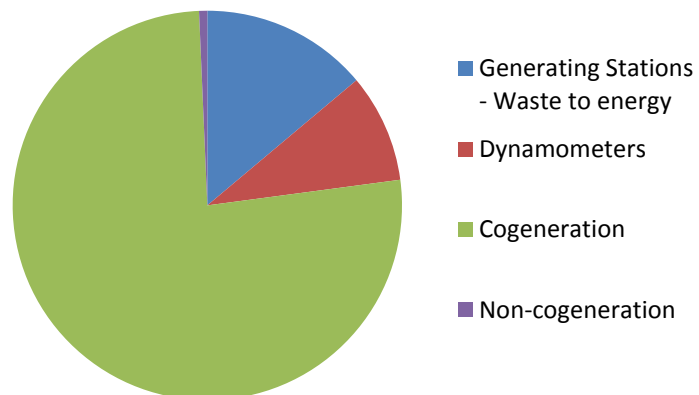
Number of Customers



R3 Sales ~ 100 GWh, 0.2% DTE Electric Sales



R3 Revenues ~ \$8M, 0.2% DTE Electric Revenue



Standby Contract Capacity (SCC):

Standby contract capacity is the electric capacity in kW sufficient to meet the customer's standby load. Generator unit sizes, number of units, operating characteristics, site demands and other factors impact the amount of electric capacity sufficient to meet the customer's standby load.

Standby Power:

Standby energy is electric energy provided by DTE to serve loads that would have been served by the customers generator had it operated at its standby contract capacity.

Standby demand, also referred to as back-up demand, is electric capacity provided by DTE to serve loads that would have been served by the customers generator had it operated at its standby contract capacity less any supplemental demand adjustments if applicable.

Standby service is energy and capacity provided by DTE to serve the customer's load requirements at or below the standby contract capacity level.

Supplemental Power:

Supplemental power is electric energy and capacity provided by DTE to serve the customer's load requirements above the standby contract capacity level.

What type of customer information is usually necessary to evaluate standby requirements?

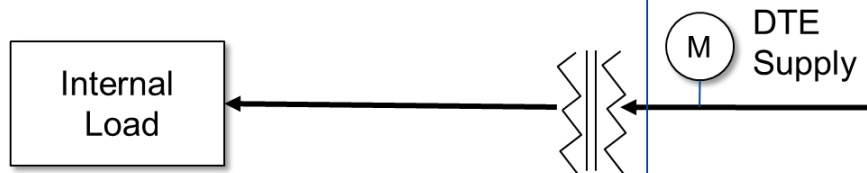


Typical customer information includes:

- Purpose or intended use of generation
- Number and type of generators including fuel type(if applicable)
- Operating Characteristics
 - Will the customer's generator(s) operate in parallel with the Company?
 - Does the customer intend to sell excess generation to the Company?
 - Are there unusual operating conditions for the generators such as unpredictable generation from renewable resource units, or generation that follows thermal load and/or prolonged periods with no generation?
 - With the exception of generating stations, the customer is generally required to provide an annual estimate of the planned generation output on a 30 or 60 minute interval basis in order to evaluate their standby service needs and appropriate supplemental rate.

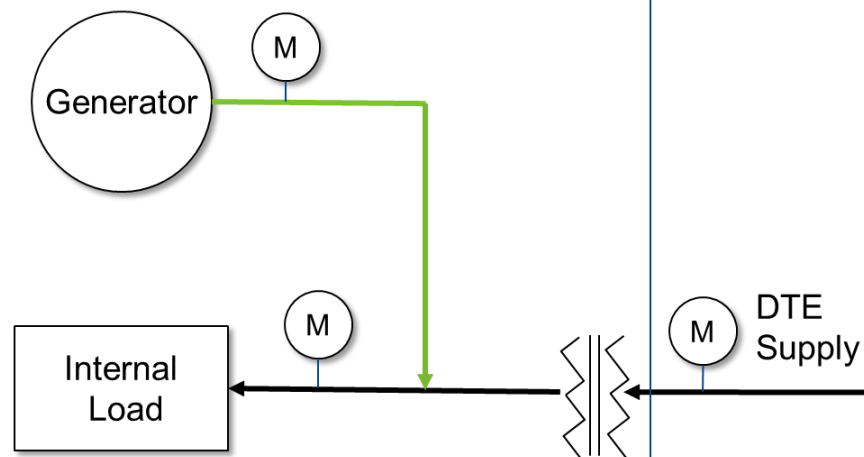
One Line Diagram

Customer Site



Customer without Generation
Internal Load = DTE Supply

Customer Site



Customer with Generation
Internal Load = DTE Supply + Gen
Note: Additional metering is required to determine standby requirements and to determine how much of DTE Supply is standby load versus supplemental load.

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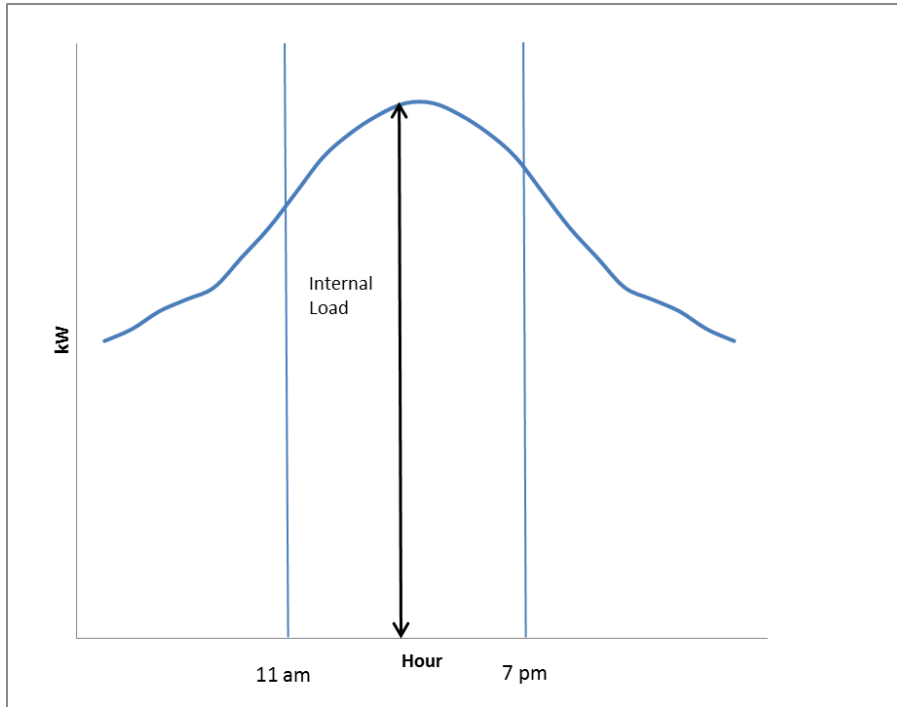
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- **Customer Examples**

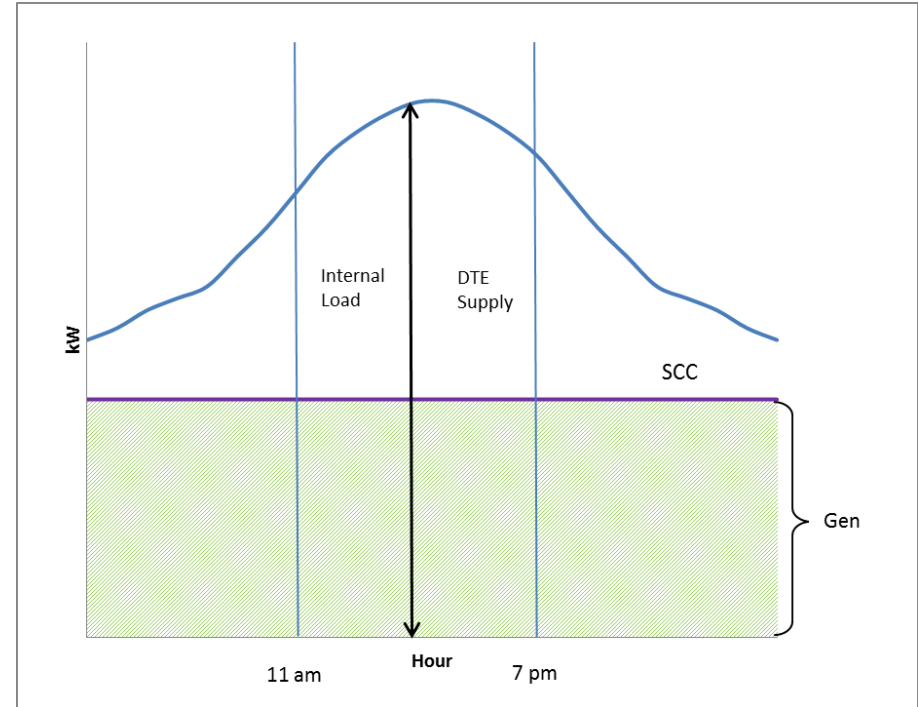
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Basic Daily Demand Profile



Customer without Generation

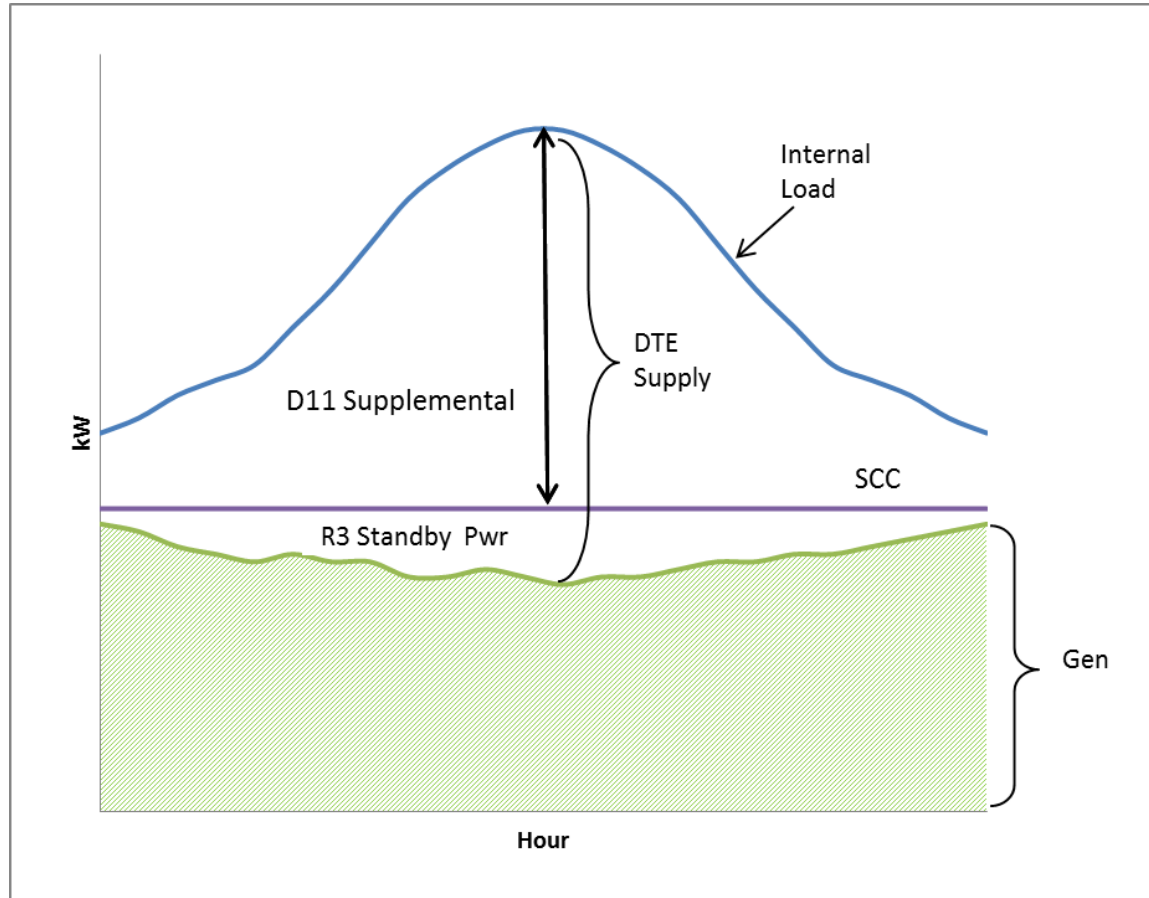
Internal Load = DTE Supply



Customer with Generation

Internal Load = DTE Supply + Gen
Standby Contract Capacity (SCC) is based on the normal output of the Generator

Supplemental Power vs Standby Power



Supplemental Power = Internal Load – SCC

Standby Power = SCC – Gen ≥ 0

There are four methods for setting Rider 3 Standby Contract Capacity(SCC):

- (a) For customers with generating units that are base loaded during peak hours.

June through October: The 1001st highest half hour output toward internal load for Jun-Oct over the latest 12 months

November through May: The 1001st highest half hour output toward internal load for Nov-May over the latest 12 months

Types of customers using this method include universities, hospitals and paper manufacturers.

- (b) For customers with generating units that are operated with the intent to provide energy to the system and standby is only required for site load during generator outages, the SCC will be set at the maximum half-hourly demand provided to the facility. This method is generally used for Generating Stations.

Setting Standby Contract Capacity cont.

- (c) For customers with generating units that do not operate in parallel with the system but have the ability to connect load normally served by on-site generation to the system during generation outages (throw-over standby), the SCC will be set at the maximum half-hourly demand thrown over to the system and supplemental demand will be the metered inflow less the metered throw-over load. Throw-over standby is less common so this method is seldom needed.
- (d) For customers demonstrating unusual operating conditions, including but not limited to initial unit operation, unpredictable generation from renewable resource units or generation that follows thermal load and prolonged period with no generation, standby contract capacity may be set by mutual agreement of the Company and the customer to levels sufficient to meet the customer's standby. Type of customer using this method might include a Solar project.

Agenda

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DTE Tariff Structure – Primary Service Compared to Standby



Primary Supply Rate – D11

Power Supply Charges:

- Demand Charge - \$14.65/kW per month

Standby Service Rate - R3

Power Supply Charges:

- Demand Charges
 - Greater of:
 - Generation Reservation – \$1.75/kW per month
 - or
- Daily Demand (BU Power) - \$4.67/kW per day +
Daily Maintenance Demand - \$2.60/kW per day
capped at \$14.65/kW

Determining
Standby
Capacity
Charge is a
three step
process

- Energy:
 - 3.807¢/kWh On-P
 - 3.507¢/kWh Off-P

- Energy:
 - 3.807¢/kWh On-P
 - 3.507¢/kWh Off-P

← Same PS Energy Rates

Delivery Charges:

- Service Charge:
 - PV = \$275/month
 - SV,TV = \$375/month
- Distribution Charge:
 - PV - \$3.38/kW
 - SV - \$1.34/kW
 - TV - \$0.88/kW

Delivery Charges:

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← Same Delivery Rates

Standby Capacity Charges for Demand Rates

Standby Capacity Charges recover DTE's costs of having generating resources available to serve load that is normally served by the customer's generator.

There are three standby capacity calculations performed to determine the monthly capacity charge for customers on demand rates; 1) the **monthly generation reservation fee**; 2) the **sum of the daily demand charges**, and; 3) the **daily demand cap**. The monthly generation reservation fee is the minimum charge amount and the daily demand cap is the maximum charge amount.

The current **monthly generation reservation fee** is \$1.75/kW/month applied to Standby Contract Capacity.

Daily demands are determined based on the daily standby demand coincident with the highest 30-minute on-peak DTE Supply demand to the site. The current daily on-peak demand charge of \$4.67/kW/day (or \$2.60/kW/day during approved maintenance periods) is applied to each daily demand. The sum of the daily demand charges are compared to the minimum and maximum charge amounts to determine what charge to apply.

Standby Capacity Charges for Demand Rates (cont.)



The **daily demand cap** is determined as the D11 Power Supply Demand Charge of \$14.65/kW times the maximum standby capacity utilized, plus the Generation Reservation charge times the difference between the total standby contract capacity and the maximum standby utilized.

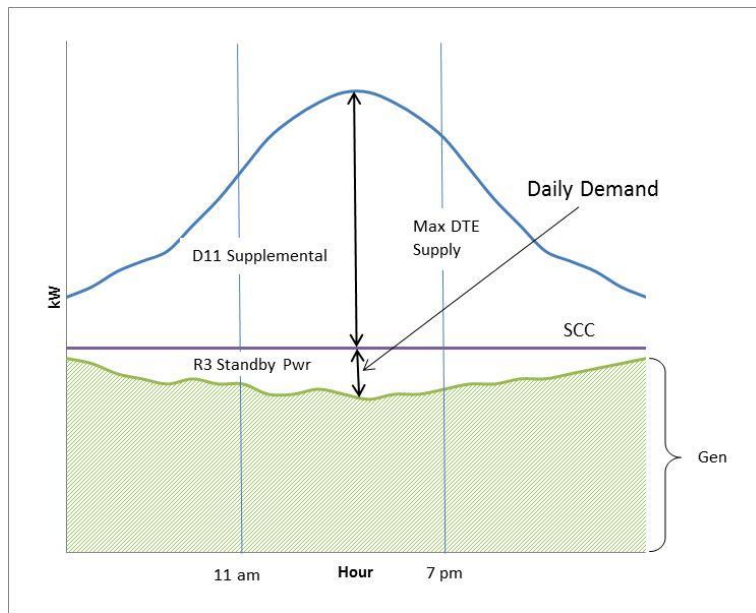
Example:

Customer's generator with a SCC of 1,000kW was down for five on-peak days during month(unscheduled outage)

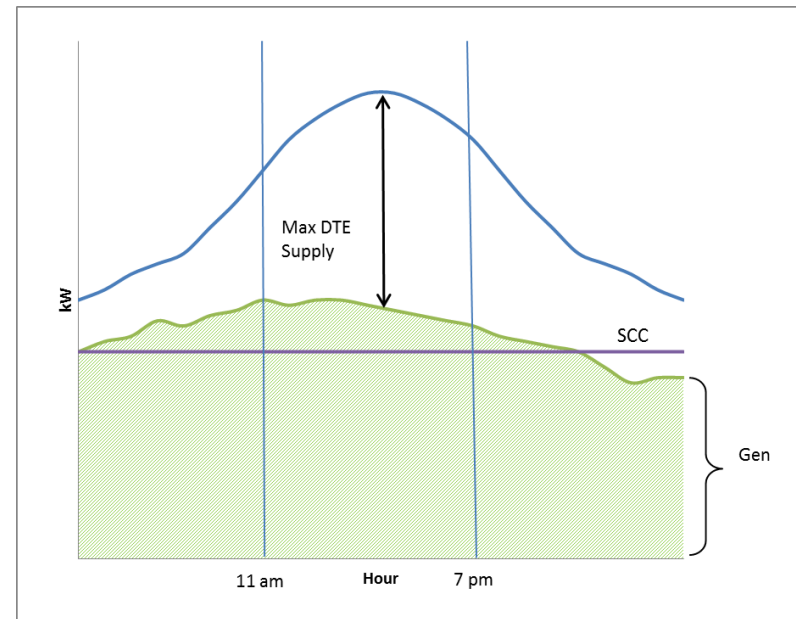
- a) Generation Reservation Fee = $1,000\text{kW} \times 1.75/\text{kW}/\text{month} = \$1,750$
- b) Sum of the Daily Demands = $1,000\text{kW} \times \$4.67/\text{kW}/\text{day} \times 5 \text{ days} = \$23,350$
- c) **Daily Demand Cap = $1,000\text{kW} \times \$14.65 = \$14,650$**

For this month the customer is billed the Daily Demand Cap

Standby Capacity Charges for Demand Rates



Daily demands are determined based on the daily standby demand coincident with the highest 30-minute on-peak DTE Supply demand. Daily Demand is reduced if supplemental demand is less than the maximum monthly on-peak supplemental demand as shown on the next slide.



A customer that operates their generator consistently at or above SCC during on-peak periods will pay the generation reservation fee (i.e. the minimum capacity charge of \$1.75/kW/month)

Daily Demand Adjustment for Demand Rates

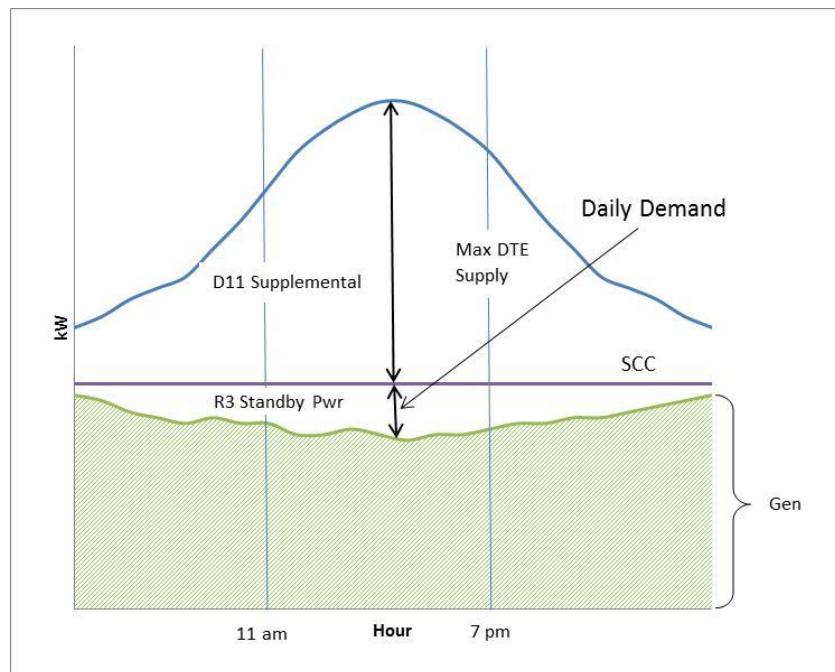


Figure 1

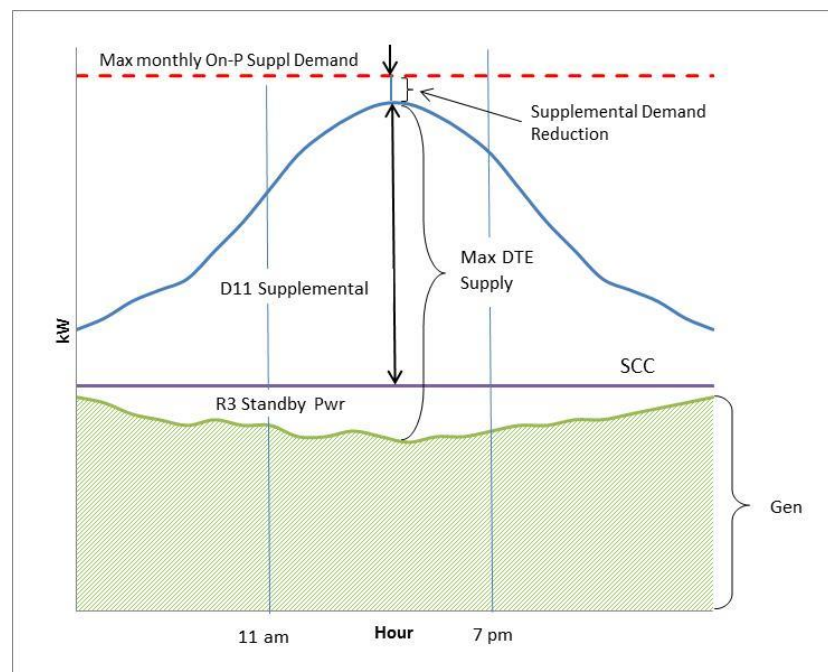


Figure 2

Daily Demand shown in Figure 1 is reduced by the Supplemental Demand Reduction shown in Figure 2 if supplemental demand is less than the maximum monthly on-peak supplemental demand.

Standby Capacity Charges for Energy Only Rates



Standby Capacity Charges recover DTE's costs of having generating resources available to serve load that is normally served by the customer's generator.

For customers taking service on energy only rates, the daily demand charges are waived and the customer pays the monthly generation reservation fee.

The current monthly generation reservation fee is \$1.75/kW/month applied to Standby Contract Capacity.

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Standby Economics



Large Industrial Customer - 8 MW Peak Demand, CHP produces 60% of annual kWh usage

Service Voltage: Subtransmission

5MW Generator

	DTE Supply with Generation						DTE Supply w/o Generation		
	Supplemental Service - Rate D11			Standby Service - Rider 3			Primary Supply Rate - D11		
Power Supply	Qty	Rate	\$000	Qty	Rate	\$000	Qty	Rate	\$000
Billing Demand - MW	33	14.65	476	54	6.89	370	91	14.65	1,371
On-Peak Energy - MWh	3,006	0.037	110	2,114	0.037	77	11,411	0.037	417
Off-Peak Energy - MWh	11,062	0.034	371	6,252	0.034	210	40,132	0.034	1,356
Total Sales - MWh	14,069			8,366			51,544		
Delivery									
Service Charge	12	375	5	12	375	5	12	375	5
Distribution Demand	44	1.34	59	54	1.34	72	98	1.34	131
Total	14,069	0.073	1,022	8,366	0.088	734	51,544	0.064	3,280

Standby Economics



Large Commercial Customer - 1MW Peak Demand, Solar produces 22% of annual kWh usage

Service Voltage: Primary
850 kW Solar

	DTE Supply with Generation						DTE Supply w/o Generation		
	Supplemental Service - Rate D11			Standby Service - Rider 3			Primary Supply Rate - D11		
Power Supply	Qty	Rate	\$000	Qty	Rate	\$000	Qty	Rate	\$000
Billing Demand - MW	8	14.65	111	Daily Demand Cap		22	9	14.65	134
On-Peak Energy - MWh	793	0.038	30	27	0.038	1	1,254	0.038	47
Off-Peak Energy - MWh	1,834	0.035	64	419	0.035	15	2,663	0.035	93
Total Sales - MWh	2,627			445			3,917		
Delivery									
Service Charge	12	275	3	12	275	3	12	275	3
Distribution Demand	11	3.38	37	1	3.38	4	12	3.38	41
Total	2,627	0.093	245	445	0.102	45	3,917	0.081	318

Standby Economics



Large Commercial Customer - 1MW Peak Demand, CHP produces 60% of annual kWh usage

Service Voltage: Primary

282 kW Generator

	DTE Supply with Generation						DTE Supply w/o Generation		
	Supplemental Service - Rate D11			Standby Service - Rider 3			Primary Supply Rate - D11		
Power Supply	Qty	Rate	\$000	Qty	Rate	\$000	Qty	Rate	\$000
Billing Demand - MW	5	14.65	69	Maint. Demand		9	9	14.65	134
On-Peak Energy - MWh	681	0.038	26	11	0.038	0.4	1,254	0.038	47
Off-Peak Energy - MWh	886	0.035	31	36	0.035	1	2,663	0.035	93
Total Sales - MWh	1,567			47			3,917		
Delivery									
Service Charge	12	275	3	12	275	3	12	275	3
Distribution Demand	9	3.38	30	3	3.38	11	12	3.38	41
Total	1,567	0.101	158	47	0.538	25	3,917	0.081	318